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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 04/18/2002

MORRISON & FOERSTER LLP
3811 VALLEY CENTRE DRIVE
SUITE 500
SAN DIEGO, CA 92130-2332

EXAMINER	
KAUFMAN, CLAIRE M	
ART UNIT	**CLASS-SUBCLASS**
1646	435-069100

DATE MAILED: 04/18/2002

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/457,864	12/10/1999	LEE A. BULLA	271122003713	8156

TITLE OF INVENTION: RECEPTOR FOR A BACILLUS THURINGIENSIS TOXIN

TOTAL CLAIMS	APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
11	nonprovisional	NO	$1280	$0	$1280	07/18/2002

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above. If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

B. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

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PTOL-85 (REV. 07-01) Approved for use through 01/31/2004.

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CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

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MORRISON & FOERSTER LLP
3811 VALLEY CENTRE DRIVE
SUITE 500
SAN DIEGO, CA 92130-2332

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	ART UNIT	CLASS-SUBCLASS
KAUFMAN, CLAIRE M	1646	435-069100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). Use of PTO form(s) and Customer Number are recommended, but not required.

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) ❑ individual ❑ corporation or other private group entity ❑ government

4a. The following fee(s) are enclosed:

❑ Issue Fee

❑ Publication Fee

❑ Advance Order - # of Copies _____

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❑ A check in the amount of the fee(s) is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

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The COMMISSIONER OF PATENTS AND TRADEMARKS is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature) (Date)

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/457,864	12/10/1999	LEE A. BULLA	271122003713	8156

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EXAMINER	
KAUFMAN, CLAIRE M	
ART UNIT	**PAPER NUMBER**
1646	

DATE MAILED: 04/18/2002

14

Determination of Patent Term Extension under 35 U.S.C. 154 (b)
(application filed after June 7, 1995 but prior to May 29, 2000)

The patent term extension is 0 days. Any patent to issue from the above identified application will include an indication of the 0 day extension on the front page.

If a continued prosecution application (CPA) was filed in the above-identified application, the filing date that determines patent term extension is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system. (http://pair.uspto.gov)

PTOL-85 (REV. 07-01) Approved for use through 01/31/2004.

Notice of Allowability	Application No.	Applicant(s)	
	09/457,864	BULLA, LEE A.	
	Examiner	Art Unit	
	Claire M. Kaufman	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendment filed 2/27/02 and telephone interview for Ex's Amd't of 4/10/02*.
2. ☒ The allowed claim(s) is/are *1-8 and 13-15*.
3. ☒ The drawings filed on *8/2/01 (paper#5)* are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
   (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

8. ☐ CORRECTED DRAWINGS must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No. ____.
   (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
   (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1☐ Notice of References Cited (PTO-892)
3☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
5☐ Information Disclosure Statements (PTO-1449), Paper No. ____.
7☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
2☐ Notice of Informal Patent Application (PTO-152)
4☐ Interview Summary (PTO-413), Paper No.____ .
6☒ Examiner's Amendment/Comment
8☐ Examiner's Statement of Reasons for Allowance
9☐ Other .

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Bruce D. Grant on April 10, 2002.

The application has been amended as follows:

Please replace claims 1, 5 and 13 with the following Clean Version:

5/1. (Twice Amended) A method to identify agents that bind to a BT-toxin receptor, said method comprising the steps of:

(i) contacting an agent with a BT-toxin binding receptor or cell expressing said receptor selected from the group consisting of

(a) a cell that has been altered to contain a nucleic acid molecule that encodes a BT-toxin receptor having the amino acid sequence of SEQ ID NO:2 and expresses said receptor;

(b) a cell that has been altered to contain a nucleic acid molecule encoding a BT-toxin receptor, wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said cell expresses said receptor and wherein said receptor is obtainable from an insect;

(c) a cell that has been altered to contain a nucleic acid molecule encoding a BT-toxin receptor, wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said cell expresses the receptor and the receptor encoded by the nucleic acid binds to the CryIA(b) toxin;

(d) a cell that has been altered to contain a fragment of the nucleic acid of (a), (b) or (c), wherein the cell expresses the polypeptide encoded by said fragment and wherein the encoded polypeptide binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid fragment of SEQ ID NO:1;

(e) an isolated BT-toxin receptor having an amino acid sequence of SEQ ID NO:2;

(f) an isolated BT-toxin receptor that is encoded by a nucleic acid molecule that hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said receptor is obtainable from an insect;

(g) an isolated BT-toxin receptor encoded by a nucleic acid molecule that hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said receptor encoded by the nucleic acid binds to the CryIA(b) toxin; and

(h) an isolated fragment of the BT-toxin receptor of (e), (f), or (g), wherein said fragment binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid fragment of SEQ ID NO:1;

(ii) determining whether said agent binds to said BT-toxin receptor;

wherein the stringent conditions comprise:

50% formamide, 0.1% bovine serum albumin, 0.1% Ficoll, 0.1% polyvinylpyrrolidone, 50 mM sodium phosphate (pH 6.5), 750 mM NaCl, and 75 mM sodium citrate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

50% formamide, 5x SSC, 50 mM sodium phosphate (pH 6.8), 0.1% sodium pyrophosphate, 5x Denhardt's solution, sonicated salmon sperm DNA (50 µg/ml), 0.1% SDS, and 10% dextran sulfate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

0.015M NaCl, 0.0015M sodium citrate, and 0.1% SDS at 50°C.

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15. (Twice Amended) A method to identify agents that block the binding of a BT-toxin to a BT-toxin receptor, said method comprising the steps of:

(i) contacting an agent, in the presence and absence of a BT-toxin, to a BT-toxin binding receptor or cell expressing said receptor selected from the group consisting of:

(a) a cell that has been altered to contain a nucleic acid molecule that encodes a BT-toxin receptor having the amino acid sequence of SEQ ID NO:2 and expresses said receptor;

(b) a cell that has been altered to contain a nucleic acid molecule that encodes a BT-toxin receptor, wherein said nucleic acid molecule hybridizes to the polynucleotide sequence

of SEQ ID NO:1 under stringent conditions, wherein said cell expresses said receptor and wherein said receptor is obtainable from an insect;

(c) a cell that has been altered to contain a nucleic acid molecule encoding a BT-toxin receptor, wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said cell expresses the receptor and the receptor encoded by the nucleic acid binds to the CryIA(b) toxin;

(d) a cell that has been altered to contain a fragment of the nucleic acid of (a), (b) or (c), wherein the cell expresses the polypeptide encoded by said fragment and wherein the encoded polypeptide binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid fragment of SEQ ID NO:1;

(e) an isolated BT-toxin receptor having an amino acid sequence of SEQ ID NO:2;

(f) an isolated BT-toxin receptor that is encoded by a nucleic acid molecule that hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said receptor is obtainable from an insect;

(g) an isolated BT-toxin receptor encoded by a nucleic acid molecule that hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said receptor encoded by the nucleic acid binds to the CryIA(b) toxin; and

(h) an isolated fragment of the BT-toxin receptor of (e), (f), or (g), wherein said fragment binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid fragment of SEQ ID NO:1;

(ii) determining whether said agent blocks the binding of said BT-toxin to said BT-toxin receptor

wherein the stringent conditions comprise:

50% formamide, 0.1% bovine serum albumin, 0.1% Ficoll, 0.1% polyvinylpyrrolidone, 50 mM sodium phosphate (pH 6.5), 750 mM NaCl, and 75 mM sodium citrate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

50% formamide, 5x SSC, 50 mM sodium phosphate (pH 6.8), 0.1% sodium pyrophosphate, 5x Denhardt's solution, sonicated salmon sperm DNA (50 µg/ml), 0.1% SDS, and 10% dextran sulfate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

0.015M NaCl, 0.0015M sodium citrate, and 0.1% SDS at 50°C.

13. (Twice Amended) A method to produce a BT-toxin receptor protein, or a fragment thereof, said method comprising the steps of:

(i) culturing a cell that has been altered to contain a nucleic acid molecule that encodes a BT-toxin receptor protein, or BT-toxin binding fragment thereof, under conditions suitable for expression of said receptor protein or fragment thereof, wherein said cell has been altered to contain a nucleic acid molecule selected from the group consisting of:

(a) a nucleic acid molecule that encodes the amino acid sequence of SEQ ID NO:2;

(b) a nucleic acid molecule encoding a BT-toxin receptor, wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, and wherein said receptor is obtainable from an insect;

(c) a nucleic acid molecule encoding a BT-toxin receptor, wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein the receptor encoded by the nucleic acid binds to the CryIA(b) toxin; and

(d) a fragment of the nucleic acid of (a), (b) or (c), wherein said fragment encodes a polypeptide that binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid fragment of SEQ ID NO:1;

(ii) isolating said BT-toxin receptor protein or fragment;

wherein the stringent conditions comprise:

50% formamide, 0.1% bovine serum albumin, 0.1% Ficoll, 0.1% polyvinylpyrrolidone, 50 mM sodium phosphate (pH 6.5), 750 mM NaCl, and 75 mM sodium citrate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

50% formamide, 5x SSC, 50 mM sodium phosphate (pH 6.8), 0.1% sodium pyrophosphate, 5x Denhardt's solution, sonicated salmon sperm DNA (50 µg/ml), 0.1% SDS, and 10% dextran sulfate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

0.015M NaCl, 0.0015M sodium citrate, and 0.1% SDS at 50°C.

The Brief Description of Figure 2 has been amended by informal Examiner's amendment as follows: in the first line, after "herein", --(SEQ ID NO:2)—has been added.

Terminal Disclaimer

The terminal disclaimer filed on 2/27/02 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Patent 5,693,491 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Claire M. Kaufman, whose telephone number is (703) 305-5791. Dr. Kaufman can generally be reached Monday through Thursday from 8:30AM to 12:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached at (703) 308-6564.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Official papers filed by fax should be directed to (703) 308-4242. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294. NOTE: If applicant *does* submit a paper by fax, the original signed copy should be retained by the applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office. **Please** advise the examiner at the telephone number above before facsimile transmission.

Claire M. Kaufman, Ph.D.
Patent Examiner, Art Unit 1646
April 16, 2002

LORRAINE SPECTOR
PRIMARY EXAMINER

Marked up version:

1. (Twice Amended) A method to identify agents that bind to a BT-toxin receptor, said method comprising the steps of:

(i) contacting an agent with a BT-toxin binding receptor or cell expressing said receptor selected from the group consisting of:

(a) a cell that has been altered to contain a nucleic acid molecule that encodes a BT-toxin receptor having the amino acid sequence of SEQ ID NO:2 and expresses said receptor;

(b) a cell that has been altered to contain a nucleic acid molecule encoding a BT-toxin receptor [that], wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said cell expresses said receptor [has the same sequence as an insect BT toxin receptor that occurs in nature] and wherein said receptor is obtainable from an insect;

(c) a cell that has been altered to contain a nucleic acid molecule that encodes a BT-toxin receptor [that], wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein [the] said cell expresses the receptor and the receptor encoded by the nucleic acid binds to the CryIA(b) toxin;

(d) a cell that has been altered to contain a fragment of the nucleic acid of (a), (b) or (c), wherein the cell expresses the polypeptide encoded by said fragment and wherein the encoded polypeptide binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid [molecule] fragment of SEQ ID NO:1;

(e) an isolated BT-toxin receptor having an amino acid sequence of SEQ ID NO:2;

(f) an isolated BT-toxin receptor that is encoded by a nucleic acid molecule that hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, [said receptor having the same sequence as an insect BT toxin receptor that occurs in nature] wherein said receptor is obtainable from an insect;

g) an isolated BT-toxin receptor encoded by a nucleic acid molecule that hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said receptor encoded by the nucleic acid binds to the CryIA(b) toxin; and

(h) an isolated fragment of the BT-toxin receptor of (e), (f), or (g), wherein said fragment binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid [molecule] fragment of SEQ ID NO:1;

(ii) determining whether said agent binds to said BT-toxin receptor;

wherein the stringent conditions comprise:

50% formamide, 0.1% bovine serum albumin, 0.1% Ficoll, 0.1% polyvinylpyrrolidone, 50 mM sodium phosphate (pH 6.5), 750 mM NaCl, and 75 mM sodium citrate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

50% formamide, 5x SSC, 50 mM sodium phosphate (pH 6.8), 0.1% sodium pyrophosphate, 5x Denhardt's solution, sonicated salmon sperm DNA (50 µg/ml), 0.1% SDS, and 10% dextran sulfate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;[.]

or

0.015M NaCl, 0.0015M sodium citrate, and 0.1% SDS at 50°C.

5. (Twice Amended) A method to identify agents that block the binding of a BT-toxin to a BT-toxin receptor, said method comprising the steps of:

(i) contacting an agent, in the presence and absence of a BT-toxin, to a BT-toxin binding receptor or cell expressing said receptor selected from the group consisting of:

(a) a cell that has been altered to contain a nucleic acid molecule that encodes a BT-toxin receptor having the amino acid sequence of SEQ ID NO:2 and expresses said receptor;

(b) a cell that has been altered to contain a nucleic acid molecule encoding a BT-toxin receptor [that], wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said cell expresses said receptor [has the same sequence as an insect BT toxin receptor that occurs in nature] and wherein said receptor is obtainable from an insect;

(c) a cell that has been altered to contain a nucleic acid molecule that encodes a BT-toxin receptor [that], wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein the said cell expresses the receptor and the receptor encoded by the nucleic acid binds to the CryIA(b) toxin;

d) a cell that has been altered to contain a fragment of the nucleic acid of (a), (b) or (c), wherein the cell expresses the polypeptide encoded by said fragment and wherein the encoded polypeptide binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid [molecule] fragment of SEQ ID NO:1;

(e) an isolated BT-toxin receptor having an amino acid sequence of SEQ ID NO:2;

(f) an isolated BT-toxin receptor that is encoded by a nucleic acid molecule that hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, [said receptor having the same sequence as an insect BT toxin receptor that occurs in nature] wherein said receptor is obtainable from an insect;

g) an isolated BT-toxin receptor encoded by a nucleic acid molecule that hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein said receptor encoded by the nucleic acid binds to the CryIA(b) toxin; and

(h) an isolated fragment of the BT-toxin receptor of (e), (f), or (g), wherein said fragment binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid [molecule] fragment of SEQ ID NO:1;

(ii) determining whether said agent blocks the binding of said BT-toxin to said BT-toxin receptor;

wherein the stringent conditions comprise:

50% formamide, 0.1% bovine serum albumin, 0.1% Ficoll, 0.1% polyvinylpyrrolidone, 50 mM sodium phosphate (pH 6.5), 750 mM NaCl, and 75 mM sodium citrate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

50% formamide, 5x SSC, 50 mM sodium phosphate (pH 6.8), 0.1% sodium pyrophosphate, 5x Denhardt's solution, sonicated salmon sperm DNA (50 μg/ml), 0.1%

SDS, and 10% dextran sulfate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;[,]

or

0.015M NaCl, 0.0015M sodium citrate, and 0.1% SDS at 50°C.

13. (Twice Amended) A method to produce a BT-toxin receptor protein, or a fragment thereof, said method comprising the steps of:

(i) culturing a cell that has been altered to contain a nucleic acid molecule that encodes a BT-toxin receptor protein, [of] or BT-toxin binding fragment thereof, under conditions suitable for expression of the encoded protein or fragment thereof, wherein said cell has been altered to contain a nucleic acid molecule selected from the group consisting of:

(a) a nucleic acid molecule that encodes the amino acid sequence of SEQ ID NO:2;

(b) a nucleic acid molecule encoding a BT-toxin receptor [that], wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, and wherein said receptor is obtainable from an insect[having the same sequence as an insect BT toxin receptor that occurs in nature];

(c) a nucleic acid molecule encoding a BT-toxin receptor [that], wherein said nucleic acid molecule hybridizes to the polynucleotide sequence of SEQ ID NO:1 under stringent conditions, wherein the receptor encoded by the nucleic acid binds to the CryIA(b) toxin; and

(d) a fragment of the nucleic acid of (a), (b) or (c), wherein said fragment encodes a polypeptide that binds to the CryIA(b) toxin and wherein the fragment is about the same length as a protein fragment encoded by a Bam-Sac nucleic acid [molecule] fragment of SEQ ID NO:1; and

(ii) determining whether said agent binds to said BT-toxin receptor;

wherein the stringent conditions comprise:

50% formamide, 0.1% bovine serum albumin, 0.1% Ficoll, 0.1% polyvinylpyrrolidone, 50 mM sodium phosphate (pH 6.5), 750 mM NaCl, and 75 mM sodium citrate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

50% formamide, 5x SSC, 50 mM sodium phosphate (pH 6.8), 0.1% sodium pyrophosphate, 5x Denhardt's solution, sonicated salmon sperm DNA (50 μg/ml), 0.1% SDS, and 10% dextran sulfate at 42°C, with washes at 42°C in 0.2x SSC and 0.1% SDS;

or

0.015M NaCl, 0.0015M sodium citrate, and 0.1% SDS at 50°C.